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PATENT
02-097-T

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Borsakian et al.

Examiner:

Serial No.: 10/029,498

Group Art Unit: 1619

Title: **COLOR CHANGING NAIL POLISH**

Filed: 12/19/2001

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MAR 22 2002

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DISCLOSURE STATEMENT

The Applicant submits this document in support of his Petition to Make Special. The Applicant believes that each paragraph below distinguishes the invention described and claimed in the present patent application from the reference described.

Document A: U.S. Patent Number 3,896,014

US Patent No. 3,896,014 discloses a liquid nail lacquer composition comprising a polyene, a polythiol, a photocuring rate accelerator and a surfactant, which cures to a hard finish when exposed to actinic light.

Document B: U.S. Patent Number 3,928,113

US Patent No. 3,928,113 discloses a method of coating human nails in which a basecoat, comprising a water soluble or water swellable polymer dissolved in a solvent, is applied to the nails and allowed to dry. This is followed by the application of a photocurable polymer which is cured by exposure to a light source.

Document C: U.S. Patent Number 4,950,467

US Patent No. 4,950,467 discloses sunscreen compositions, which contain certain 5-phenylpentadienoate esters which act as UV filters when incorporated in a carrier in amounts ranging from 0.1-50% by weight.

Document D: U.S. Patent Number 5,435,994

US Patent No. 5,435,994 discloses a photo-reactive nail polish coating composition that cures quickly upon exposure to low levels of ultraviolet radiation. The coating consists of a polymer formed from a composition comprising nitrocellulose, a photo-reactive monomer, a photoinitiator and a reaction inhibitor, resulting in a product compatible with commercially available nail polish of any color and removable by standard acetone-based polish removers. It is also compatible with every-day chores because it is insoluble in water. The composition is not phototoxic and has very low potential for skin irritation or sensitization. The photo-reactive coating is applied over the wet nail polish and then irradiated with safe dosages of ultraviolet radiation, causing the nail polish to dry in a few minutes.

Document E: U.S. Patent Number 5,456,905

US Patent 5,456,905 disclose a photo-reactive nail polish coating composition that cures quickly upon exposure to low levels of ultraviolet radiation. The coating consists of a polymer formed from a composition comprising nitrocellulose, a photo-reactive monomer, a photoinitiator and a reaction inhibitor, resulting in a product compatible with commercially available nail polish of any color and removable by standard acetone-based polish removers. It is also compatible with every-day chores because it is insoluble in water. The composition is not phototoxic and has very low potential for skin irritation or sensitization. The photo-reactive coating is applied over the wet nail polish and then irradiated with safe dosages of ultraviolet radiation, causing the nail polish to dry in a few minutes.

Document F: U.S. Patent Number 5,591,255

US Patent No. 5,591,255 discloses a method of making a solvent based ink formulation including a microencapsulated, thermochromic pigment (which exhibits a visible color change in response to a change in temperature) comprising:

- a) drying a slurry including the thermochromic pigment to a solids concentration between 80% and 95%;
- b) mixing the dried slurry in an appropriate mixing base that has an inherent or adjusted acid value lower than 100 and does not include anymore than trace amounts of the following solvents: ketones, diols, aldehydes, amines and aromatic and
- c) adding any desired ink components, providing the ink components have an inherent or adjusted acid value that is below 100 and do not include any more than trace amounts of the following solvents: ketones, diols, aldehydes, amines and aromatic compounds.

The mixing base can be any one of 1) mixing varnish, 2) polyester resin vehicle; or 3) colloidal dispersion resin. This patent describes but does not claim a thermochromic nail polish.

Document G: U.S. Patent Number 5,730,961

US Patent No. 5,730,961 discloses a metamorphic nail polish capable of color changing from clear to any visible color in presence of sunlight or any ultraviolet radiation source. The nail polish will go back to colorless as soon as it is removed from the sunlight or the UV source. The active chemical is a photochromic substance such as spiropyrans or spiroxazines molecules. The photochromic compound is added to any clear nail polish to form a composition sensitive to UV radiation. It may be directly applied on the nail or on top of a previously applied colored enamel.

Document H: U.S. Patent Number 5,830,446

US Patent No. 5,830,446 discloses a method for increasing the apparent color intensity of a cosmetic composition comprising:

- 1) formulating a cosmetic composition suitable for application to the human body and
- 2) adding thereto a fluorescent brightening agent.

Preferred fluorescent brightening agents are selected from the group consisting of:

- 1) 2, 2'-(2, 5-thiophene diyl)bis(5-tert-butylbenzoxazole);
- 2) 2, 2'-(1, 1-ethylene bis(3-sulfo-4, 1-phenylene)imino(6-(diethyl amino)-1, 3, 5-triazine-4, 2-di-yl)imino))bis-1, 4-benzene-di-sulfonic acid, hexa-sodium salt;
- 3) 4-methyl-7, 7-dimethyl-amino-coumarin; and
- 4) 4-methyl-7, 7-diethyl-amino-coumarin.

Cosmetic compositions that may be rendered improved by the process of the present invention are hair care products such as conditioners, mousses, gels, cuticle coats and the like and color cosmetics such as lipsticks and nail enamels or lacquers.

Document I: U.S. Patent Number 5,997,849

US Patent No. 5,997,849 discloses a method of making a solvent based ink formulation which includes a thermochromic pigment, wherein the pigment being formed of microcapsules, includes drying a slurry that contains the pigment to a solids concentration between 80% and 95%, mixing the dried slurry in an appropriate mixing base, and adding any desired ink components to the base formulation. Acceptable ink components include a gel vehicle, a free flow vehicle, a drying agent, a lithographic varnish, an ink wax, a polyester vehicle, a polyglycol solvent, a colloidal dispersion resin, water, and a defoamer. This patent is similar to US Patent No. 5,591,255 described above except that this patent describes and claims a thermochromic nail lacquer. However, this nail lacquer must be applied in three layers: a base of regular colored lacquer, a middle coat of thermochromic nail lacquer, and a clear topcoat.

Document J: U.S. Patent Number 6,139,822

US Patent No. 6,139,822 discloses a non-toxic nail enamel which forms a decorative irregular film over natural or synthetic human nails. The nail enamel composition includes an aqueous nail enamel composition of at least one film forming component in an aqueous emulsion or dispersion. The film forming component forms the decorative irregular film containing uniform or random cracks upon drying.

Document K: U.S. Patent Number 6,159,457

US Patent No. 6,159,457 discloses a method for coating keratinous substances including applying an agent for coating keratinous substances comprising: (1) an aqueous/organic solution containing: (a) at least one non-crosslinked polymer capable of forming a deposit or a film on a keratinous substrate after drying and exhibiting a critical temperature T_c for solubility in water of the LCST (Lower Critical Solution Temperature) or UCST (Upper Critical Solution Temperature) type ranging from 0.degree. to

100.degree. C.; and (b) at least one total organic solvent for the polymer within the temperature range for use of the composition which is partially or completely miscible with water and more volatile than water; or (2) an aqueous solution or aqueous dispersion containing: (a) at least one non-crosslinked polymer capable of forming a deposit or a film on a keratinous substrate after drying and exhibiting a critical temperature T_c for solubility in water of the LCST or UCST type ranging from 0.degree. to 100.degree. C.; and (b) at least one surfactant and/or one hydrophilic polymer which are capable of establishing physical interactions with the non-crosslinked polymer; and cosmetic or dermatological compositions including these agents, in particular, hair form retention and/or styling products or make-up products of an aqueous nature.

Document L: U.S. Patent Number 6,190,677

US Patent No. 6,190,677 discloses a process for preparing a photochromic compound and/or improving the photochromic properties of a photochromic compound selected from metal oxides, hydrated metal oxides and metal oxide/hydrate complexes by heat-treating the photochromic compound in the presence of at least one metallic component such as an oxide or hydroxide of lithium, sodium and/or potassium, the photochromic compound obtained using this process, and the cosmetic composition comprising it.

The Applicant believes that none of the documents identified above discloses the **"COLOR CHANGING NAIL POLISH"** claimed in the present patent application. In particular none of the above identified documents discloses a nail polish with a combination of colorant, temperature sensitive colorant and photochromic powder which will allow the nail polish to exhibit a first color when the nail is at normal body temperature, a second color when the temperature of the nail is above normal body temperature, and a third color when the nail polish composition is exposed to UV radiation.

Respectfully submitted,



Norton R. Townsley
BELASCO JACOBS & TOWNSLEY, LLP
Applicant's Attorney
Registration No. 33,608

100 Corporate Pointe
Suite 330
Culver City, CA 90230
Phone: (310) 645-7259
Fax: (310) 215-3248